

January 2015 Regional Climate Summary

For the San Francisco Bay Area and Monterey Bay Area

January 2015 was exceptionally dry and unseasonably warm, much like January 2014.

January 2015 was the driest January on record across the San Francisco Bay Area and Monterey Bay Area. Most climate stations received no measurable rainfall during January - a remarkable occurrence considering that January is typically one of the wettest months of the year. The previous driest January at most climate stations occurred just last year.

Downtown San Francisco was one of many climate stations with no measurable rain in January. Until this year, a January with no measurable rain had never occurred in San Francisco since rainfall records began there in 1849 (166 years).

January 2015 was also a month of record warmth. Thirty daily high temperature records were set during January. Two climate stations experienced their warmest January on record, and average January temperatures at several other locations ranked January 2015 as one of the top three warmest. Although January 2015 was one of the warmest Januaries on record, January 2014 was slightly warmer at most locations.

January 2015 certainly did not start off warm. A cold Canadian airmass settled over the area during the first few days of the new year. Overnight lows from January 1-3 were below freezing in most of the inland valleys, and near freezing in coastal areas. The coldest temperatures generally occurred during the early morning hours of Friday, January 2. Below is a sampling of coldest overnight lows that occurred during the early January cold snap:

Location	Date	Overnight Low Temperature
King City	January 2	23
Napa Airport	January 2	26
Morgan Hill	January 2	26
Sonoma County Airport	January 1 and 2	27
Gilroy	January 1 and 2	27
Santa Cruz	January 1 and 2	29
Concord	January 2	30
Livermore	January 2 and 3	30
Redwood City	January 2	30
San Jose	January 1	30
Salinas	January 1, 2, and 3	31
Oakland Airport	January 1 and 2	32
San Rafael	January 2	33
Monterey Airport	January 3	36
San Francisco Downtown	January 1	41

High pressure quickly strengthened across the region after January 3rd and temperatures climbed rapidly, reaching record warm levels by Tuesday, January 6. Five daily high temperature records were set or tied across the Monterey Bay Area that day, including a 78 in Santa Cruz and 77 in Salinas. In addition, both Pebble Beach on the Monterey Peninsula and Nepenthe on the Big Sur coast reported highs of 82 degrees on the afternoon of January 6. Six more daily high temperature records were tied or set on the following day (Jan. 7) in Marin, Alameda, Contra Costa, Santa Clara, and Monterey Counties.

Daytime temperatures generally held above normal for the remainder of January as an upper level ridge persisted near the west coast. Several more daily high temperature records were set during the final full week of the month. Two daily record highs occurred on Saturday, January 24 with six more on Sunday, January 25. On Sunday, January 25, two climate stations near Monterey Bay warmed to levels rarely seen during January. The Monterey climate station posted a high of 84 degrees that day, which tied the all-time January high temperature record set just last year on January 17, 2014. On the other side of Monterey Bay, in Santa Cruz, the high temperature of 83 degrees on January 25 came within one degree of matching the all-time January high temperature record of 84 which was set on January 16, 2014.

A month of record warmth and dryness ended on a record warm note. On Saturday, January 31, nine more daily high temperature records were set or tied across the San Francisco Bay Area, including 74 in San Francisco and 78 in Oakland.

Average high temperatures for January were well above normal, anywhere from 3 to 8 degrees F warmer than normal. Average low temperatures were closer to normal (or even slightly below normal in some locations) due to a lack of cloud cover during most January nights. The higher elevation climate stations on Mount Diablo and Mount Hamilton were the exceptions. These two higher elevation locations remained in the mild airmass above the nocturnal inversion on most January nights. Thus, their average overnight lows were much above normal.

Average January temperatures (the average of both high and low temperatures) were the warmest on record at two climate stations:

Location	January 2015 Average Temperature	Previous Record for January and Year		Years of records at climate station
Half Moon Bay	55.0	54.6	1986	75
Salinas Airport	57.4	57.1	2014	82

In addition, January 2015 ranked as one of the top three warmest Januaries at several other climate stations:

Location	January 2015 Average Temperature	Rank	Record for January and Year		Years of records at climate station
Angwin	52.7	2 nd warmest	55.1	2014	64
Monterey	56.6	2 nd	57.5	2014	68
Mount Diablo Junction	53.9	2 nd	56.6	2014	64
Mount Hamilton	52.3	2 nd	53.5	2014	67
San Francisco Airport	54.0	2 nd	55.1	2014	71
Watsonville	55.5	2 nd	56.1	2014	102
Kentfield	52.1	3 rd	53.5	2014	111
Oakland Museum	56.1	3 rd	57.0	2014	45
Santa Cruz	55.5	3 rd	55.6	2014	123

Downtown San Francisco, which has temperature records dating back to 1875, posted its 4th warmest January on record with an average monthly temperature of 55.5 degrees

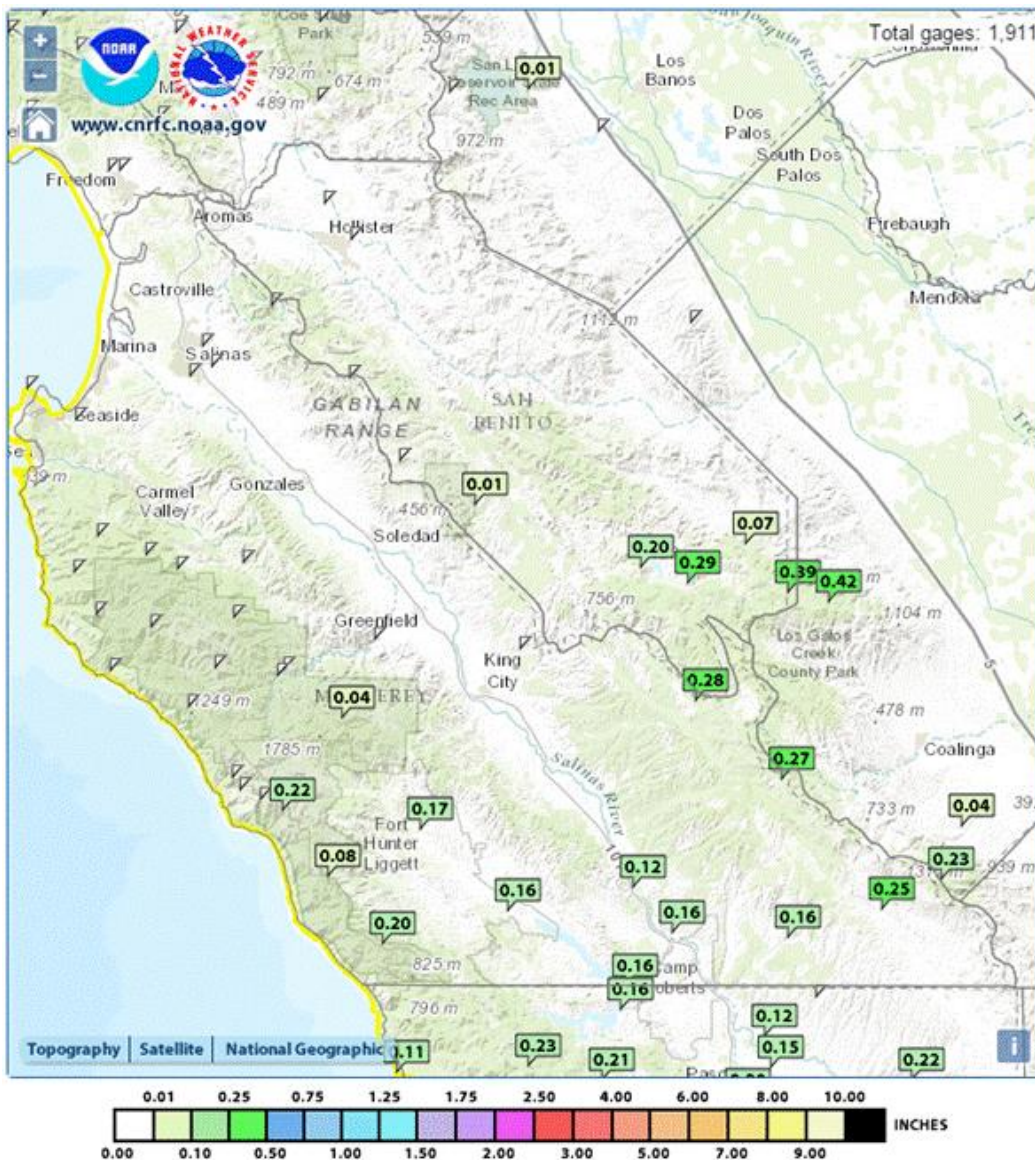
January Regional Temperature Statistics:

Location	Average High	Normal High	Departure from Normal	Average Low	Normal Low	Departure from Normal
North Bay						
Angwin	61.8	53.5	8.3	43.6	39.0	4.6
Kentfield	61.6	55.0	6.6	42.6	41.3	1.3
Napa	62.1	57.3	4.8	40.7	39.4	1.3
Napa Airport	59.3	55.1	4.2	36.7	37.0	-0.3
Petaluma Airport	62.2	56.9	5.3	37.8	39.2	-1.4
San Rafael	61.5	54.0	7.5	43.5	41.8	1.7
Sonoma County Airport	62.9	56.7	6.2	37.7	36.6	1.1
Sonoma	62.6	56.3	6.3	38.7	37.8	0.9
San Francisco Peninsula						
Half Moon Bay	64.7	59.0	5.7	45.3	41.5	3.8
Redwood City	63.6	58.0	5.6	40.3	40.4	-0.1
San Francisco Airport	61.0	56.3	4.7	46.9	44.2	2.7
San Francisco Downtown	61.9	56.9	5.0	49.0	45.7	3.3
East Bay						
Concord Airport	62.3	55.9	6.4	40.5	39.7	0.8
Fremont	63.4	58.1	5.3	42.3	42.2	0.1
Hayward Airport	62.1	57.2	4.9	43.8	42.5	1.3
Livermore	61.1	56.1	5.0	38.6	39.0	-0.4
Livermore Airport	63.2	56.0	7.2	39.7	37.4	2.3
Martinez	58.3	55.2	3.1	39.1	35.6	3.5
Mount Diablo Junction	60.6	55.5	5.1	47.1	40.0	7.1
Newark	61.3	57.6	3.7	43.4	42.1	1.3
Oakland	66.3	58.1	8.2	45.8	44.3	1.5
Oakland Airport	60.5	56.9	3.6	41.6	41.7	-0.1
Richmond	64.2	57.4	6.8	46.1	43.0	3.1
South Bay and Santa Cruz County						
Moffett Federal Airfield	62.4	58.7	3.7	42.1	42.9	-0.8
Mount Hamilton	57.2	48.7	8.5	47.4	38.4	9.0
San Jose	62.3	58.1	4.2	40.6	42.0	-1.4
Santa Cruz	69.5	62.6	6.9	41.5	41.3	0.2
Watsonville	69.2	60.9	8.3	41.8	39.4	2.4
Watsonville Airport	68.5	61.3	7.2	42.5	39.5	3.0
Monterey and San Benito Counties						
Big Sur Station	67.4	59.7	7.7	45.3	42.9	2.4
Carmel Valley	69.9	61.9	8.0	41.1	39.2	1.9
Hollister	63.9	60.1	3.8	38.2	38.2	0.0
King City	68.3	63.6	4.7	37.4	37.7	-0.3
Monterey	66.0	58.3	7.7	47.2	43.7	3.5
Monterey Airport	66.4	59.5	6.9	44.8	42.5	2.3
Salinas	69.7	62.3	7.4	42.4	39.5	2.9
Salinas Airport	69.9	61.3	8.6	44.8	41.3	3.5

January Precipitation

There were only two light precipitation events during January. The first occurred on Friday, January 16 when a weak weather system moved across Northern California. Light rain fell as far south as San Francisco and Berkeley, but nearly all measurable rain was confined to the North Bay. Up to a third of an inch fell on the Sonoma County coast and locally in the North Bay Mountains, otherwise amounts were generally less than a tenth of an inch.

The second light rain event occurred on Tuesday, January 27, when an upper low off the southern California coast lifted to the northeast and across south-central California. Light rain that morning was primarily confined to southern Monterey County and southern San Benito County, although sprinkles were observed as far north as San Jose. Rainfall totals on the 27th were generally under a quarter of an inch.



Rain totals from the January 27 light rain event

Other than these two light rain events, January was a completely dry month. An upper level ridge of high pressure persisted along the west coast for nearly the entire month, effectively preventing Pacific weather systems from making their way into California.

Rain totals for January 2014 were exceptionally low. The majority of climate stations received no measurable rainfall during January and those locations that did measure picked up less than 5 percent of their January normal.

January Regional Precipitation Statistics:

Location	January Rainfall	Normal Jan Rainfall	Percent of Normal
North Bay			
Angwin	0.05	7.76	1
Kentfield	0.00	9.13	0
Napa	0.02	5.13	0
Napa Airport	0.00	4.38	0
Occidental	0.31	11.11	3
Petaluma Airport	0.03	4.93	1
San Rafael	0.00	6.95	0
Sonoma County Airport	0.12	7.05	2
Sonoma	0.00	6.02	0
San Francisco Peninsula			
Half Moon Bay	0.00	5.53	0
Redwood City	0.00	4.02	0
San Francisco Airport	0.00	4.19	0
San Francisco Downtown	0.00	4.50	0
East Bay			
Concord Airport	0.00	3.27	0
Fremont	0.00	3.07	0
Hayward Airport	0.00	3.30	0
Livermore	0.00	2.87	0
Livermore Airport	0.00	3.01	0
Martinez	0.02	4.01	0
Mount Diablo Junction	0.00	4.77	0
Newark	0.00	2.95	0
Oakland	0.00	4.71	0
Oakland Airport	0.00	3.99	0
Richmond	0.00	4.83	0
South Bay and Santa Cruz County			
Moffett Federal Airfield	0.00	2.75	0
Mount Hamilton	0.02	4.68	0
San Jose	0.02	3.07	1
Santa Cruz	0.00	6.28	0
Watsonville	0.00	4.46	0
Watsonville Airport	0.00	3.81	0
Monterey and San Benito Counties			
Big Sur Station	0.00	9.21	0
Carmel Valley	0.00	3.82	0
Hollister	0.00	2.93	0
King City	0.06	2.32	3
Monterey	0.00	4.40	0
Monterey Airport	0.01	3.17	0
Salinas	0.00	3.09	0
Salinas Airport	0.01	2.60	0

January 2015 was the driest January on record for the vast majority of climate stations – some of which have climate records that span over a century. The table below lists all climate stations which experienced their driest January on record:

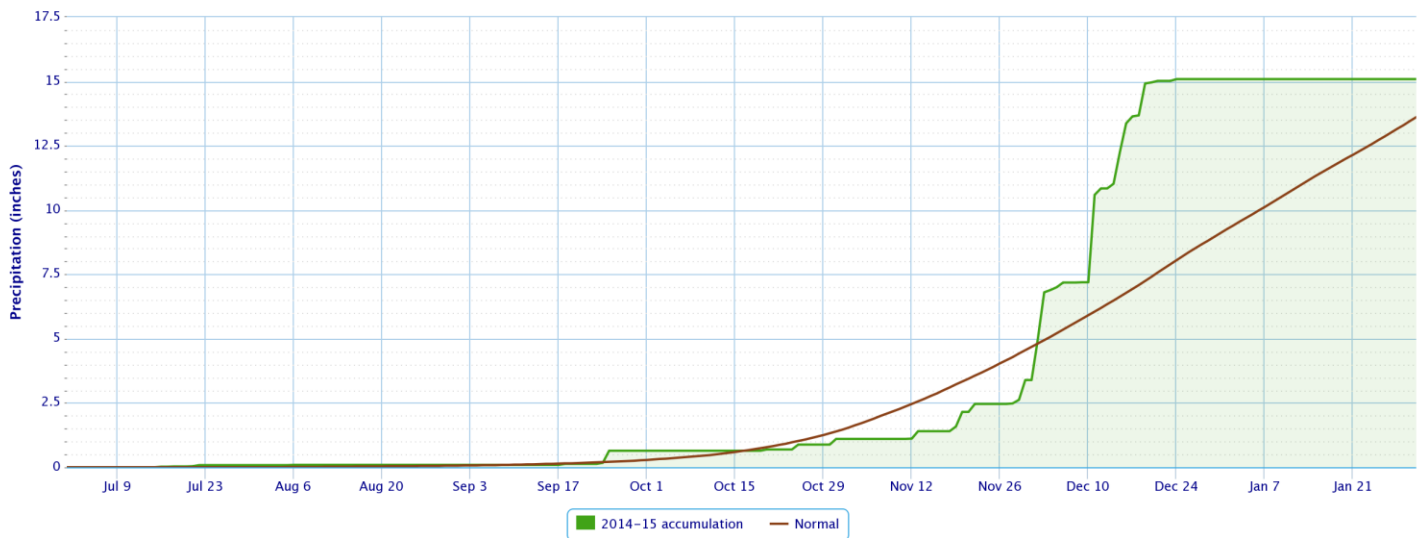
Location	Normal January precip (inches)	January 2015 precip (inches)	Previous Driest January and Amount		Length of Climate Record (years)
Angwin	7.76	0.05	2014	0.15	71
Big Sur Station	9.21	0.00	2014	0.00	100
Half Moon Bay	5.53	0.00	2014	0.17	73
Kentfield	9.13	0.00	2014	0.02	113
Livermore	2.87	0.00	2014	0.08	112
Martinez	4.01	0.02	2014	0.08	87
Monterey	4.40	0.00	2014	0.04	80
Moffett Federal Airfield	2.75	0.00	2014	0.08	70
Mount Diablo Junction	4.77	0.00	2014	0.13	62
Mount Hamilton	4.68	0.02	1991	0.16	67
Napa	5.13	0.02	2014	0.11	117
Newark	2.95	0.00	2014	0.04	72
Oakland Museum	4.71	0.00	2014	0.04	43
Oakland Airport	3.99	0.00	2014	0.00	51
Occidental	11.11	0.31	2014	0.38	70
Petaluma Airport	4.93	0.03	2014	0.12	100
Redwood City	4.02	0.00	2014	0.00	86
Richmond	4.83	0.00	2009	0.28	66
Salinas	3.09	0.00	1971	0.00	57
Salinas Airport	2.60	0.01	1984	0.10	84
San Francisco Airport	4.19	0.00	2014	0.01	69
San Francisco Downtown	4.50	0.00	2014	0.06	166
San Jose	3.07	0.02	1920	0.10	121
San Rafael	6.95	0.00	2012	0.00	60
Santa Cruz	6.28	0.00	2014	0.05	122
Sonoma	6.02	0.00	2014	0.07	75
Watsonville	4.46	0.00	2014	0.05	102

The only climate station that did not experience its driest January on record was King City. The 0.06” of rain that fell in King City on January 27 was enough to place January 2015 as the third driest on record at this Salinas Valley location.

The 2014-2015 rain year began on July 1, 2014. A very wet December helped push year-to-date rainfall totals up to 140-200% of normal across the region by the end of the calendar year (half way through the rain year). But by the end of January, the year-to-date totals had slipped considerably and ranged from 90% of normal across portions of the North Bay to 130% of normal in the northern Santa Clara Valley and northern Salinas Valley.

Accumulated Precipitation – SAN FRANCISCO DWTN, CA

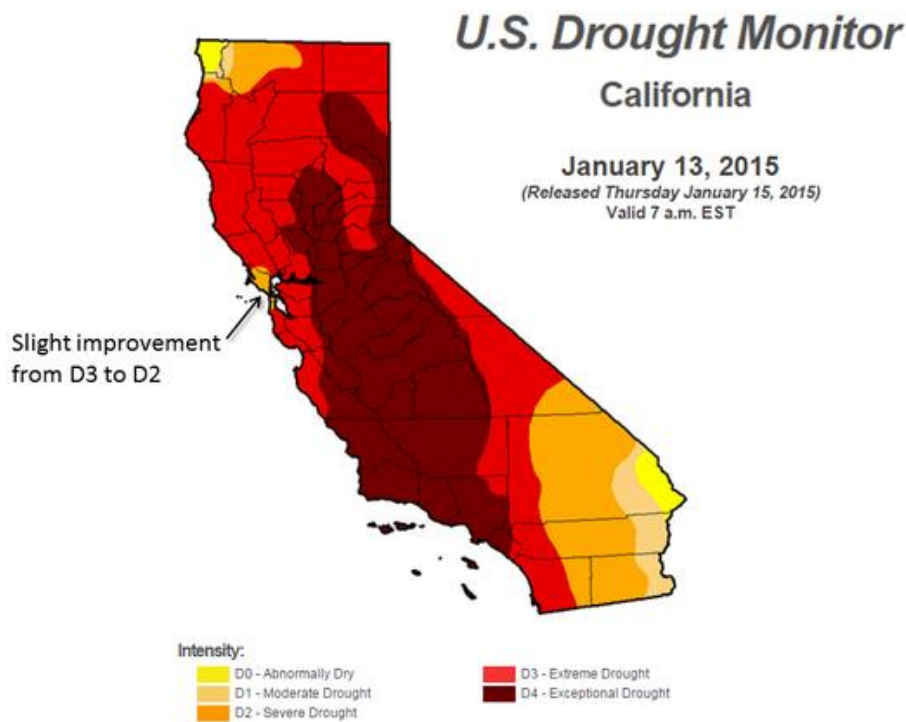
Click and drag to zoom to a shorter time interval; green/black diamonds represent subsequent/missing values



Powered by ACIS

Graph showing accumulated precipitation at San Francisco Downtown since the current rain year began on July 1, 2014. The green line represents current year rainfall and the brown line represents “normal” rainfall. Note that even with no rain during January, year-to-date rainfall in San Francisco as of January 31 was still slightly above normal, primarily because of a very wet December.

The mid-January [U.S. Drought Monitor](#) update showed a slight improvement in drought conditions across Marin County and a small portion of southern Sonoma County. Drought classification improved from D3 (extreme drought) to D2 (severe drought) in this small area. This improvement was due to factors relating to much above normal rainfall in December. The remainder of the San Francisco Bay Area and Monterey Bay Area remained in the extreme (D3) to exceptional (D4) drought classifications.



January 13 update of the U.S. Drought Monitor for the state of California.

Other January 2015 items: Fog, Waves, Warm Waters

Persistent high pressure over California during January resulted in very stable atmospheric conditions across the region, conditions ideal for night and morning radiation fog. Fog occurred periodically throughout the month of January, with several dense fog events that slowed vehicular traffic and resulted in flight delays at area airports. Night and morning fog was most prevalent in the North and East Bay Valleys, and near the Delta. But fog also formed on occasion around San Francisco Bay and near the ocean.



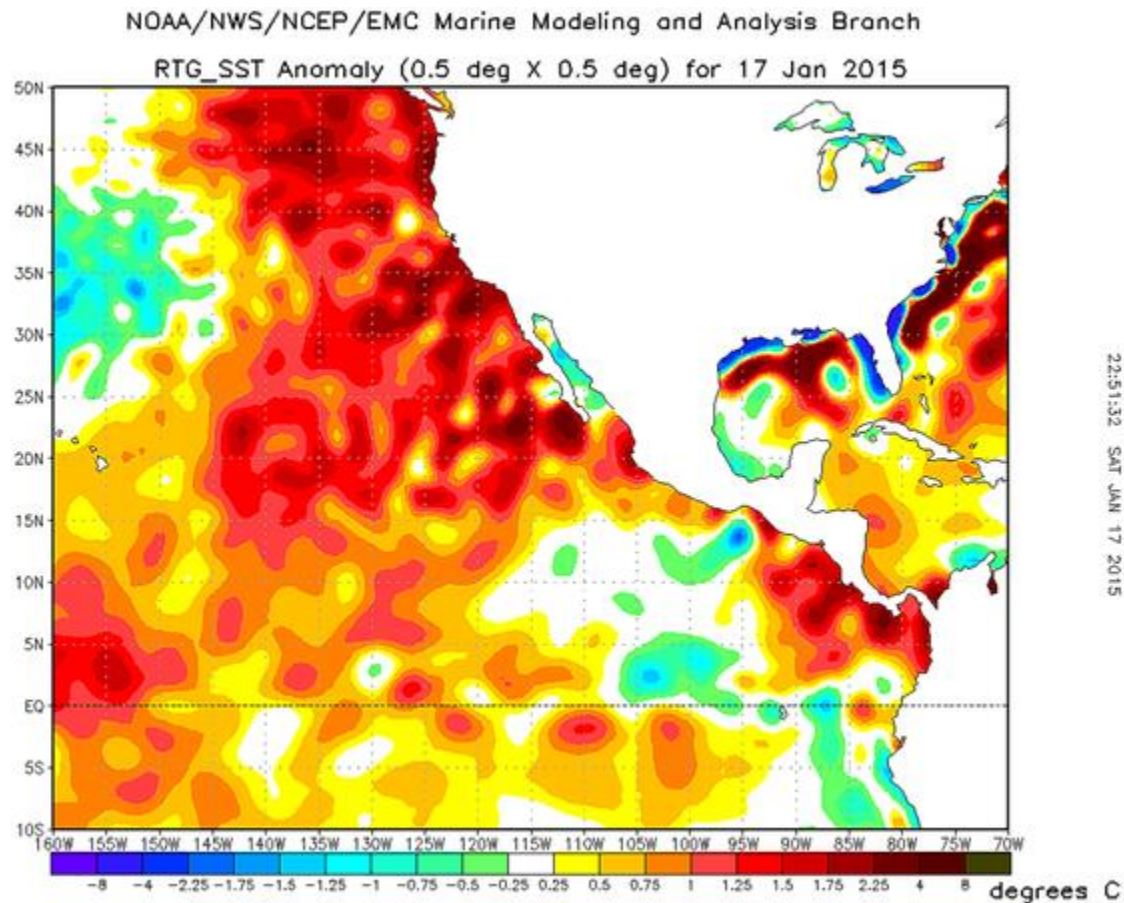
Image taken by a web cam in Marin County (webmarin.com) on the foggy morning of January 13. This view is looking south across San Francisco Bay and shows the western span of the Bay Bridge above the fog layer, as well as a portion of the San Francisco skyline.

Persistent high pressure during January meant that the ocean was relatively quiet. However, one high surf event did occur near the end of the month. Large long-period ocean swell arrived along the northern and central California coast from Friday, January 23 through Sunday, January 25. This was a sunny weekend with record warm temperatures, and area beaches were a popular destination. High surf advisories were issued to warn the public of the dangers posed by large breaking waves.



Fishermen in Pacific Grove venture a little too close to the water on January 23 - a day with high surf advisories in effect. Photo: Vern Fisher

Water temperatures along the northern and central California coast climbed above normal last summer and have remained warmer-than-normal through the autumn and into winter. In mid-January buoys in the California coastal waters were reporting sea surface temperatures more typical of July or August than that of mid-winter. On January 17 the Half Moon Bay buoy reported a water temperature of 59 degrees F while the Monterey Bay buoy reported a water temperature of 60 degrees F. These were the warmest January water temperatures at these two buoys since they began collecting data in the 1980s.



Sea surface temperature anomalies as of January 17, showing continued warmer than normal water temperatures along the entire West Coast.

Miscellaneous December Climate Information:

Daily High Temperature Records for January 2015			
Date	Location	Record Max Temp	Previous Record and Year
1/06	Monterey	75	75 in 1962
1/06	Santa Cruz	78	78 in 1911
1/06	Salinas	77	75 in 1962
1/06	Salinas Airport	76	74 in 1962
1/06	King City	76	74 in 2014
1/07	Kentfield	68	68 in 2012
1/07	Oakland Museum	71	70 in 2012
1/07	Richmond	70	67 in 2012
1/07	Gilroy	73	69 in 2006
1/07	Monterey	80	80 in 1962
1/07	King City	77	77 in 1962
1/24	Oakland Museum	72	71 in 2014
1/24	Monterey	74	74 in 2006
1/25	Richmond	69	69 in 2011
1/25	Monterey	84*	78 in 1942
1/25	Santa Cruz	83	80 in 1899
1/25	Salinas	82	78 in 2014
1/25	Salinas Airport	82	78 in 2014
1/25	King City	79	77 in 2014
1/27	San Francisco Airport	68	68 in 1984
1/29	San Francisco Airport	66	66 in 2009
1/31	Kentfield	75	71 in 1995
1/31	San Rafael	78	73 in 1976
1/31	Napa	77	75 in 1976
1/31	San Francisco Downtown	74	73 in 1976
1/31	San Francisco Airport	74	69 in 1976
1/31	Oakland Museum	74	70 in 1976
1/31	Oakland Airport	73	67 in 1953
1/31	Richmond	75	72 in 1984
1/31	San Jose	71	71 in 1962

* The high of 84 in Monterey on the 25th tied a high temperature record for the entire month of January.

Monthly Ranks for Downtown San Francisco		
Average High Temperature	61.9 deg	3rd warmest January out of 141 years (record warmest is 64.0 in 2014)
Average Low Temperature	49.0 deg	10 th warmest January out of 141 years
Average Mean Temperature	55.5 deg	4th warmest January out of 141 years (record warmest is 56.6 in 1986)
Precipitation	0.00 in	driest January out of 166 years (previous record 0.06 inches in 2014)

Monthly Extremes for Select Locations			
Location	Max Temp: Warmest Day(s)	Min Temp: Coolest Day(s)	Precipitation: Wettest Day(s)
Sonoma County Airport	1/31	1/01 and 1/02	1/16
	80 degrees	27 degrees	0.08 inches
San Francisco	1/31	1/01	n/a
	74 degrees	41 degrees	
Livermore Airport	1/31	1/02 and 1/03	n/a
	74 degrees	30 degrees	
San Jose	1/31	1/01	1/12 and 1/19
	71 degrees	30 degrees	0.01 inches
Salinas Airport	1/25	1/02	1/21
	83 degrees	34 degrees	0.01 inches